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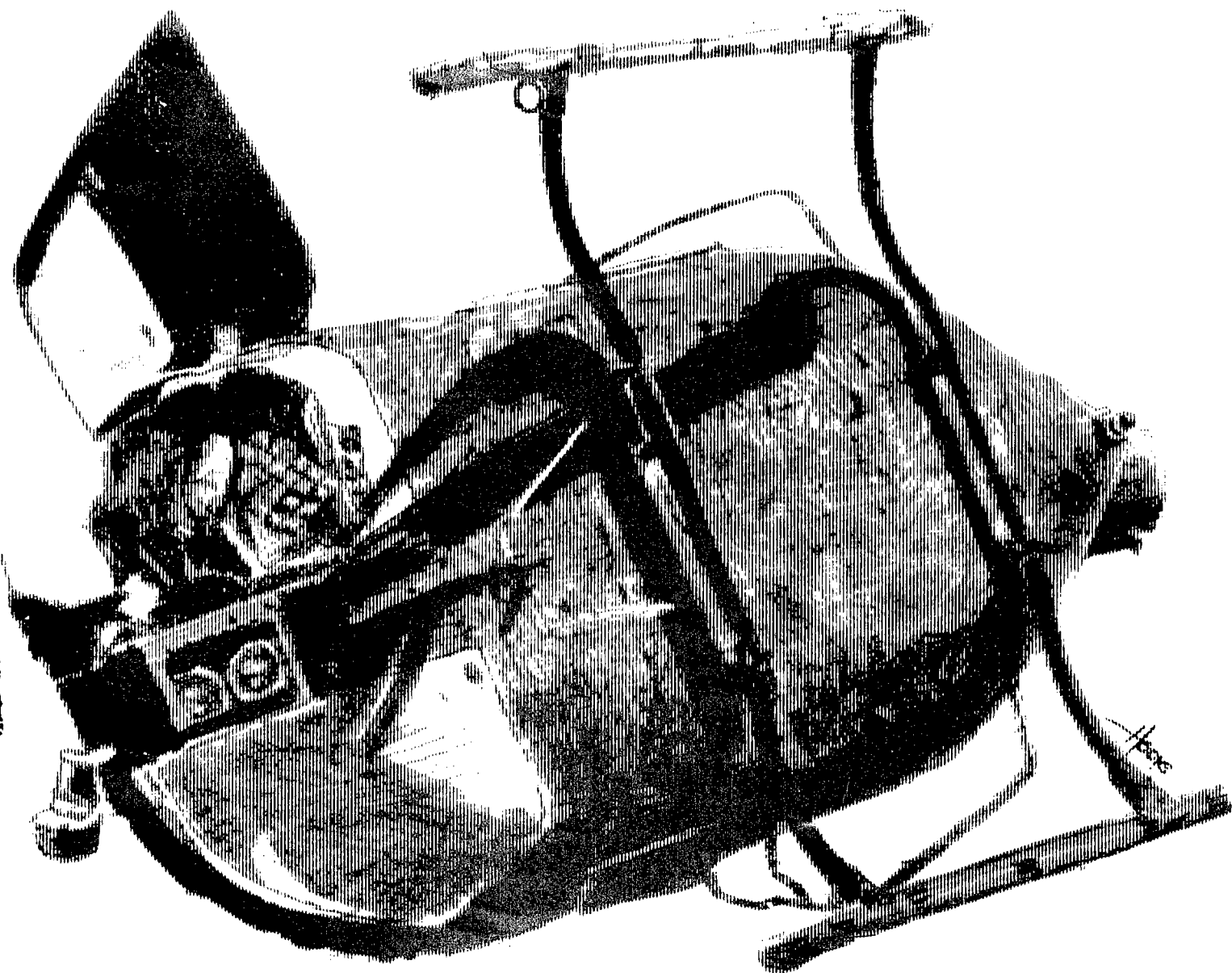
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# Aircraft Mishap Facts

## Second Half FY 84 Review



**Midair collision**

**UH-1H Class A mishap**

On 10/10/80, a UH-1H helicopter, N1010, was on a training flight. The pilot was performing a steep climb when he encountered a Cessna 441. The two aircraft collided, resulting in the death of the pilot and the destruction of both aircraft.

**Recommended actions:**

- 1. The pilot should have been more aware of his altitude and position relative to other aircraft.
- 2. The pilot should have maintained a safe climb rate and avoided steep climbs.
- 3. The pilot should have been more vigilant and aware of his surroundings.

**Maintenance test flight**

**UH-1H Class A mishap**

On 10/10/80, a UH-1H helicopter, N1010, was on a maintenance test flight. The pilot was performing a steep climb when he encountered a Cessna 441. The two aircraft collided, resulting in the death of the pilot and the destruction of both aircraft.

**Recommended actions:**

- 1. The pilot should have been more aware of his altitude and position relative to other aircraft.
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- 3. The pilot should have been more vigilant and aware of his surroundings.

**Main drive shaft failure**

**UH-1H Class B mishap**

On 10/10/80, a UH-1H helicopter, N1010, was on a maintenance test flight. The pilot was performing a steep climb when he encountered a Cessna 441. The two aircraft collided, resulting in the death of the pilot and the destruction of both aircraft.

**Recommended actions:**

- 1. The pilot should have been more aware of his altitude and position relative to other aircraft.
- 2. The pilot should have maintained a safe climb rate and avoided steep climbs.
- 3. The pilot should have been more vigilant and aware of his surroundings.

**Dynamic rollover**

**UH-1H Class A mishap**

On 10/10/80, a UH-1H helicopter, N1010, was on a maintenance test flight. The pilot was performing a steep climb when he encountered a Cessna 441. The two aircraft collided, resulting in the death of the pilot and the destruction of both aircraft.

**Recommended actions:**

- 1. The pilot should have been more aware of his altitude and position relative to other aircraft.
- 2. The pilot should have maintained a safe climb rate and avoided steep climbs.
- 3. The pilot should have been more vigilant and aware of his surroundings.

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## Use pages as miniposters

The pages in this pamphlet are designed to be used as miniposters. We suggest that you take at least one copy of the pamphlet apart and display individual pages in conspicuous places where aviators will see them often. Change the posters frequently. The photographs on each page can also be made into 35mm slides for use in safety briefings.

# Aircraft Mishap Facts

## Second Half FY 84 Review

### Introduction

During the last 6 months of fiscal 84, the Army had 18 Class A, 5 Class B, and 51 Class C aircraft flight mishaps. These mishaps resulted in 17 Army fatalities, 2 civilian fatalities, 17 destroyed aircraft, and more than \$21 million in costs. One Class A aviation ground mishap with one fatality also occurred.

Fifteen of the Class A and B flight mishaps involved human error only. Six of the Class A and B mishaps involved some type of materiel inadequacy. Three of these six also involved human error. One Class A mishap involved human and environmental factors (birds) and one Class A mishap was caused by a lightning strike. A UH-60 in cruise flight was struck by lightning. A flash was seen, followed by an explosion. The aircraft was autorotated to the nearest available landing site. Damages totaled \$1,600,000.

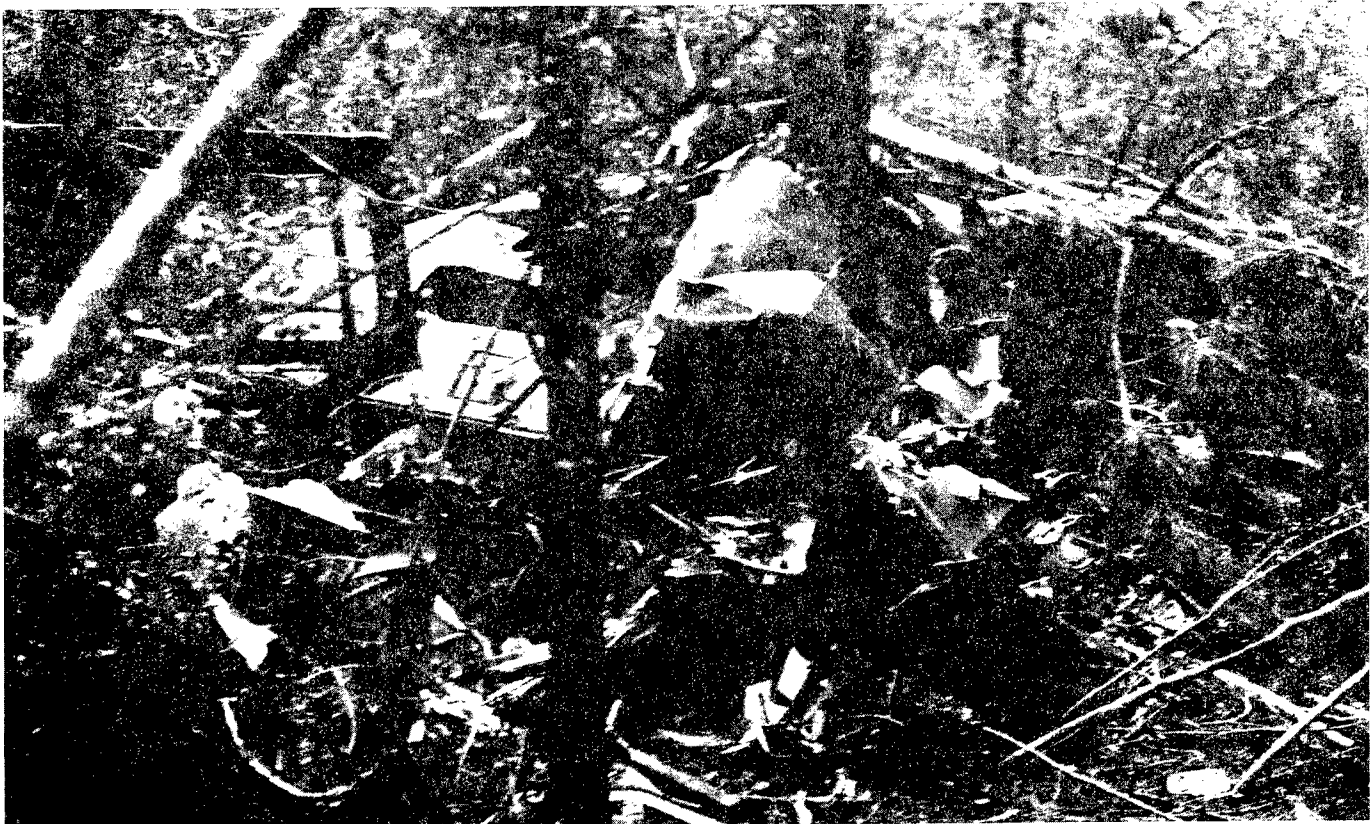
Seventeen of the Class C mishaps involved materiel failure, eight involved tree strikes, and three aircraft hit wires. The other Class C mishaps ranged from dropped loads to hard landings to landing gear not lowered.

A review is provided of 16 of the Class A mishaps—1 is classified and 1 is the UH-60 lightning strike—and 3 of the Class B mishaps—1 is classified and 1 field investigation report has not been received at this writing. A review is also provided of the Class A aviation ground mishap. Each review focuses on the errors causing the mishap. With this information, commanders can take action to correct the conditions causing the errors and prevent recurrence of similar mishaps.

### Class A, B, and C Army Aircraft Flight Mishaps

Month	Number of Mishaps		Army Fatalities	
	FY 83	FY 84	FY 83	FY 84
October	22	18	0	10
November	29	10	2	3
December	14	7	0	0
January	39	8	0	0
February	30	10	0	4
March	37	11	5	1
<b>First Half Total</b>	<b>171</b>	<b>64</b>	<b>7</b>	<b>18</b>
Month	Number of Mishaps		Army Fatalities	
	FY 83	FY 84	FY 83	FY 84
April	19	10	0	3
May	17	11	1	3
June	14	14	5	5
July	12	14	7	3
August	26	7	3	0
September	14	18	0	3
<b>Second Half Total</b>	<b>102</b>	<b>74</b>	<b>16</b>	<b>17</b>
<b>Year End Total</b>	<b>273</b>	<b>138</b>	<b>23</b>	<b>35</b>

# Training flight



The instructor pilot of this UH-1 was unable to recover from a right roll.

## UH-1H Class A mishap

The UH-1 was on a training flight, with an instructor pilot and two student pilots on board. The IP did some slope landings and hovering autorotations at a stagefield and then left the stagefield to do some hydraulics-off maneuvers. On the first approach, the approach angle was too steep and the student pilot made a go-around. As the aircraft entered a right turn to crosswind at about 400 feet agl, it was seen to pitch nose up and roll to the right. The aircraft rolled right 270 degrees and crashed on its left side in a wooded area.

**Result:** Three fatalities and a destroyed aircraft, at a cost of \$1,348,704.

**Cause:** During the right turn to crosswind, the IP, using the floor mike because of an inoperative cyclic communication switch,

communicated to the student pilot that the hydraulic switch was coming on. Because of climb power and a right crosswind, the student pilot had pressure exerted on the left pedal. As hydraulic power returned, the left pedal pressure had the servo spool valve at full travel and caused the servo to extend fully in less than one-half of a second. The tail rotor thrust, combined with the right cyclic applied, caused the aircraft to develop a right roll rate from which the IP was unable to recover. The IP was unable to block left pedal input because his right foot was on the floor mike.

**Crewmember experience:** The IP had 3,456 rotary wing hours—3,010 in UH-1Hs. The student pilot had 57 rotary wing hours—11 in UH-1Hs.

## Recommended actions

**Unit level:** Emphasize to instructor pilots the necessity of being on the controls any time the hydraulic switch is turned on.

**DA level:** Evaluate training requiring close crew coordination such as NOE or nonstandard maneuvers and determine if such training should be conducted only in aircraft with fully functional intercommunication systems. Evaluate the requirement to conduct hydraulics-off training. Change the warnings currently published in the operator's manual to be more explicit concerning the hazards involved in hydraulic malfunctions and hydraulics-off maneuvers. Expedite the product improvement proposal to install improved servos in the UH-1. Define the flight envelope in which the hydraulic switch could be safely returned to the on position and take action to ensure this is included in the appropriate aircrew training manual.

# Prohibited maneuver



This UH-1 crashed as the pilot was performing a maneuver prohibited by regulations.

## UH-1H Class A mishap

Three UH-1 aircraft had just changed to a loose trail formation when the pilot of the No. 2 aircraft broke formation without notifying the air mission commander. The pilot descended to an altitude of 50 to 75 feet agl and flew for about 2 miles before flying over a lake. After passing the lake, the pilot made a steep cyclic climb and then a 180-degree turn with approximately 60 degrees angle of bank, followed by a steep dive. The

pilot pulled the aircraft out of the dive at about 30 feet and repeated the maneuver. The excessive rate of descent in the second dive could not be stopped, and the helicopter crashed.

**Result:** One fatality, five major injuries, one minor injury, and a destroyed aircraft, at a cost of \$1,392,059.

**Cause:** The pilot performed a maneuver prohibited by regulations which resulted in an excessive rate of descent that could not be stopped before ground impact.

**Crewmember experience:** The pilot had 2,172 rotary wing hours—856 in UH-1Hs. The copilot had 225 rotary wing hours—57 in UH-1Hs.

## Recommended actions

**Unit level:** Brief assigned personnel on the need to maintain strict air discipline with respect to regulations, rules, and professional standards of conduct. Evaluate the pilot of this aircraft to determine his fitness to continue on flight status.

# Engine failure



The engine of this UH-1 failed while the pilot was making a power recovery from an autorotative descent.

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## UH-1M Class A mishap

The UH-1 was on a maintenance test flight. While the pilot was doing a power recovery from an autorotative descent to check the rotor rpm adjustment, power loss occurred. The pilot reentered autorotation and, about 200 feet agl, bled off rotor rpm during attempted power recovery. The low rotor rpm condition resulted in separation of the engine cowling, which severed a main rotor blade

pitch control tube. The aircraft entered an uncontrollable spiral and crashed.

**Result:** Two fatalities and a destroyed aircraft, at a cost of \$596,758.

**Cause:** Engine failure was caused by corrosion on the No. 1 main bearing. The engine had been allowed to sit for about a year without being properly preserved for storage.

**Crewmember experience:** The pilot had 3,248 rotary wing hours—188 in UH-1Ms.

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## Recommended actions

**Unit level:** Ensure all maintenance-related activities are conducted in accordance with appropriate aircraft technical manuals.

**Higher level:** Ensure subordinate units comply with existing maintenance directives. Consider the establishment of a periodic unit-level maintenance evaluation.



# Decreased engine performance



Engine rpm decreased during low-level flight, and UH-1 settled into trees.

## **UH-1M Class A mishap**

The UH-1 was providing day convoy cover/reconnaissance during a unit move. The mission involved low-level and nap-of-the-earth operations in the vicinity of the convoy route. As the aircraft was being flown approximately 40 feet above trees at 20 knots airspeed, the engine rpm

began to decrease and would not respond to the rpm increase switch. The aircraft settled into the trees and crashed.

**Result:** One fatality, three major injuries, one minor injury, and a destroyed aircraft, at a cost of \$662,235.

**Cause:** The exact cause of the decreased engine performance could not be established through teardown and analysis efforts.

**Crewmember experience:** The pilot had 1,633 rotary wing hours—64 in UH-1Ms. The copilot had 863 rotary wing hours—143 in UH-1Ms.

## **Recommended actions**

None.

# Visual reference lost in dust



UH-1 crew lost visual reference with the ground while landing on an unimproved dusty road.

## UH-1V Class A mishap

The UH-1 was on a night medevac mission. On short final for landing, the aircraft became engulfed in a dust cloud created by the rotorwash. The crew lost visual reference with the ground. The copilot, who was on the controls, decided to make a go-around. The UH-1 drifted left, and a main rotor blade hit a tree. Control was lost and the aircraft hit several trees before coming to rest on its left side. A postcrash fire consumed most of the aircraft.

**Result:** Two minor injuries and a destroyed aircraft, at a cost of \$621,435.

**Cause:** The copilot did not make an adequate reconnaissance of the area

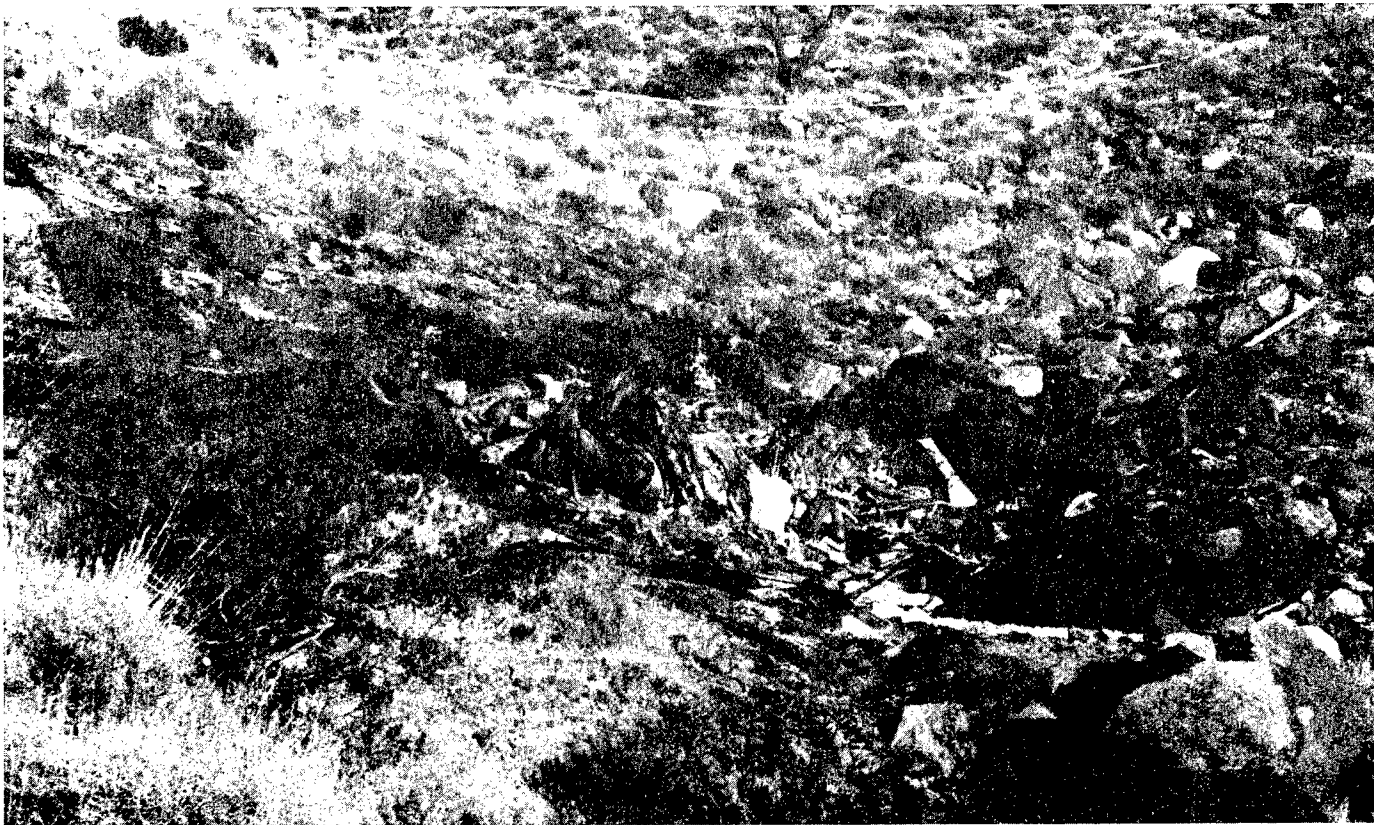
and landed on an unimproved dusty road rather than a larger grassy area next to the road. On short final, the copilot realized the suitability of the landing site was questionable but delayed making a decision to go around or continue the approach to the ground until the aircraft became engulfed in dust. The copilot's concern about the injured soldier may have caused him to take shortcuts in procedures. The pilot did not properly supervise the flight or communicate with the copilot on short final.

**Crewmember experience:** The pilot had 862 rotary wing hours—687 in UH-1Vs. The copilot had 4,575 rotary wing hours—approximately 1,500 in UH-1s.

## Recommended actions

**Unit level:** Ensure pilots realize that successful completion of the mission is of prime importance and that real or perceived urgency of the mission is not a reason to jeopardize the safety of the crew. Ensure that pilots on pilot-in-command orders realize that, regardless of the copilot's qualifications, the PIC has the responsibility of ensuring that correct procedures are followed.

# Materiel failure



UH-1 crashed and burned when compressor section of engine failed during approach for landing.

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## UH-1H Class A mishap

The UH-1 was involved in a service mission to transport personnel to a mountain radio site. With the copilot on the controls, an approach was begun to the ridgeline landing zone. During the final approach, at approximately 35 knots and less than 100 feet from termination, the copilot

felt a vibration and elected to make a go-around. As this maneuver was initiated, the compressor section of the engine failed. Power to maintain flight was lost, and the crew entered autorotation. The aircraft touched down on a slope, rotated 180 degrees about the lateral axis, and came to rest inverted. A postcrash fire destroyed the aircraft.

**Result:** Two major injuries, three minor injuries, and a destroyed aircraft, at a cost of \$1,078,929.

**Cause:** Materiel failure of the compressor section of the engine.

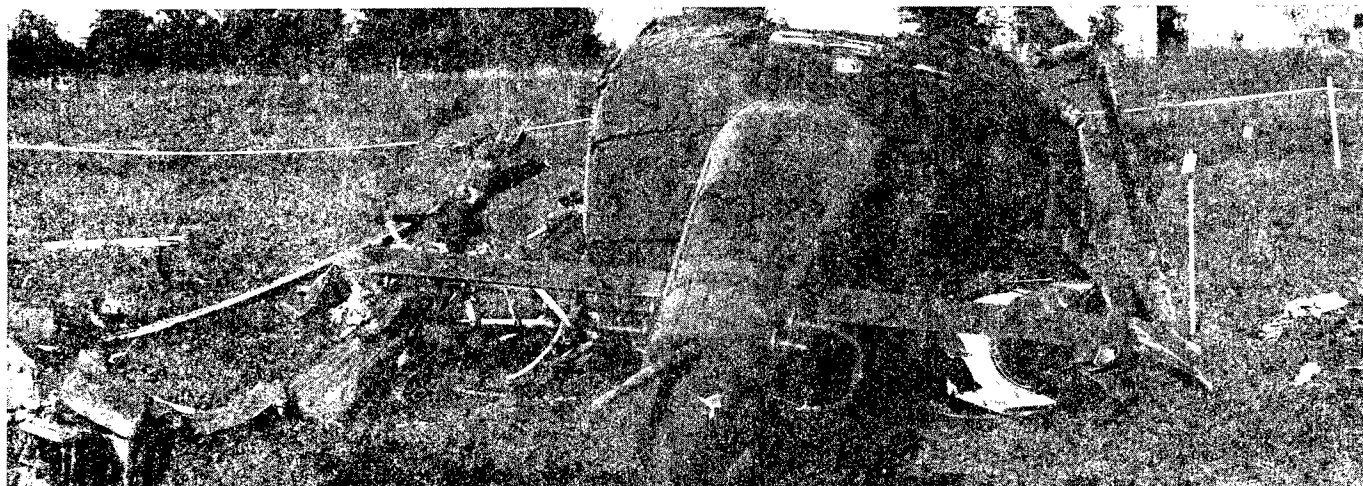
**Crewmember experience:** The pilot had 826 rotary wing hours—785 in UH-1Hs. The copilot had 618 rotary wing hours—568 in UH-1Hs.

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## Recommended actions

**Unit level:** Brief all personnel on the facts and circumstances surrounding this mishap, stressing the importance of immediately following the actions outlined in the operator's manual during an emergency.

# Midair collision



The rotor blades of these two UH-1 helicopters meshed during an unauthorized maneuver. Top photo shows the damage to the wing aircraft, and bottom photo shows the damage to the lead aircraft.

## UH-1H Class A mishap

Two UH-1H aircraft, crews, and passengers had participated in a civil disaster drill and were ready to depart for their home airfield. The pilots of the two aircraft planned to make a low-level, high-speed flyby to salute the people they had been supporting. The aircraft took off and flew about 3 miles before turning back toward the airfield. With both pilots flying from the right seats, the aircraft formed up in a side-by-side formation. While flying at 95 knots and 25 feet above the ground, the wing aircraft converged on the lead aircraft. During an evasive maneuver by the pilot of the wing aircraft, the overlapping rotor blades of the two aircraft meshed, causing both aircraft to partially break up and crash.

**Result:** Two fatalities, seven major injuries, eight minor injuries, and two destroyed aircraft, at a cost of \$2,270,873.

**Cause:** The type maneuver being flown is prohibited by AR 360-61, AR 95-1, local regulations, and standing operating procedures. The route of flight was not a properly designated low-level route. The pilot of the wing aircraft failed to follow procedures outlined in TC 1-201, Tactical Flight Procedures. He was flying below and virtually side by side the lead aircraft with blade overlap. The copilot of the wing aircraft did not tell the pilot they were too close to the other aircraft. The relatively inexperienced copilot had not been briefed concerning the maneuver and what his duties would be. The mission commander, who was the copilot of the lead aircraft, did not realize that the maneuver was unauthorized or dangerous and made no attempt to abort the maneuver.

**Crewmember experience:** The pilot of the wing aircraft had 2,793 rotary wing hours—717 in UH-1Hs. The copilot of the wing aircraft had 219 rotary wing

hours—156 in UH-1Hs. The pilot of the lead aircraft had 4,622 rotary wing hours—564 in UH-1Hs. The copilot of the lead aircraft had 202 rotary wing hours—147 in UH-1Hs.

## Recommended actions

**Unit level:** Ensure that unit personnel comply with regulations and directives. Ensure that all crewmembers are briefed on the entire flight before departure. Ensure that supervisors are aware of pertinent regulations and directives and realize their responsibilities as supervisors regardless of the situation.

**Higher level:** Ensure that subordinate units are complying with regulations and directives. Reemphasize command policies concerning flybys to all subordinate units. Ensure that units are complying with DA message DACS-ZB151330Z Mar 84, subject: Minimum Elements of the Aircrew Mission and the Mission Briefback.

# Copilot overcontrols aircraft



UH-1 copilot applied too much collective pitch during hover and aircraft crashed.

## UH-1H Class A mishap

The UH-1 was No. 2 in a flight of four. The flight had landed and was hovering to a parking area. When the No. 1 aircraft came to a stationary hover, the copilot of the No. 2 aircraft thought he was getting too close and abruptly applied an excessive amount of collective pitch. The No. 2 aircraft climbed about 50 feet and entered a nose-low attitude. The pilot got on the controls, stabilized the aircraft

momentarily, and then got off the controls. Descent continued until the aircraft crashed.

**Result:** Seven minor injuries and a destroyed aircraft, at a cost of \$932,354.

**Cause:** The inexperienced copilot lost his composure and overcontrolled the aircraft. The pilot did not take and keep positive control of the aircraft. He was overconfident in the ability of the copilot to handle the situation and was accustomed to flying with experienced pilots who did not require assistance.

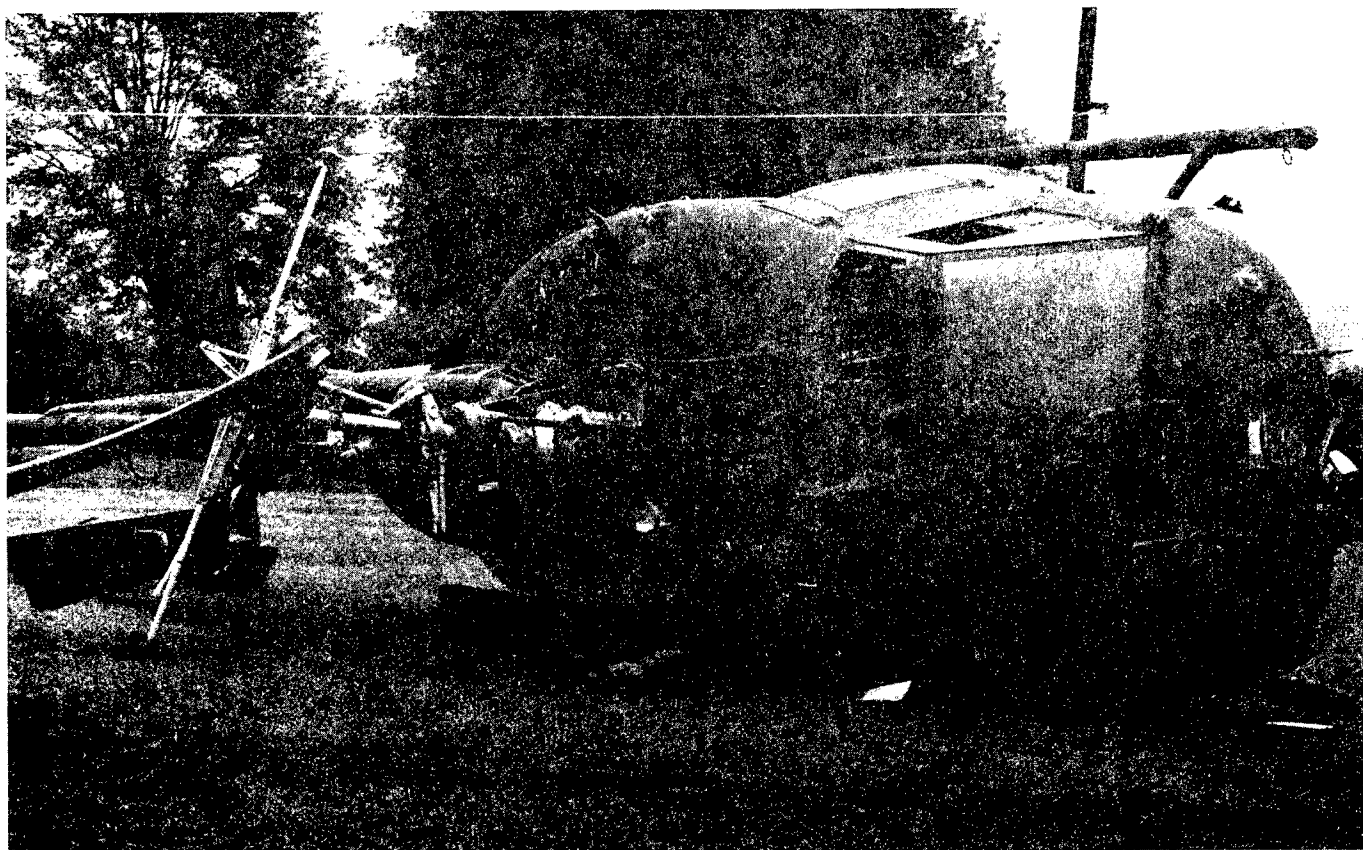
**Crewmember experience:** The pilot had 1,947 rotary wing hours—506 in UH-1Hs. The copilot had 293 rotary wing hours—243 in UH-1Hs.

## Recommended actions

**Unit level:** Emphasize to unit aviators the hazards involved and precautions to be taken when hovering downwind in formation and the necessity to remain calm under all conditions. Ensure designated pilots-in-command are aware of their responsibilities for the safe operation of their aircraft.



# Dynamic rollover



As UH-1 instructor pilot was hovering the aircraft while looking through the right rear cargo door, right landing gear hit the ground. Aircraft rolled onto right side.

## UH-1H Class A mishap

As a UH-1 IP and two student pilots were taking off from a landing zone, the IP failed to maintain ground reference. The right landing gear assembly hit the ground during right sideward flight, and the aircraft entered dynamic rollover and came to rest on its right side.

**Result:** A destroyed aircraft, at a cost of \$923,438.

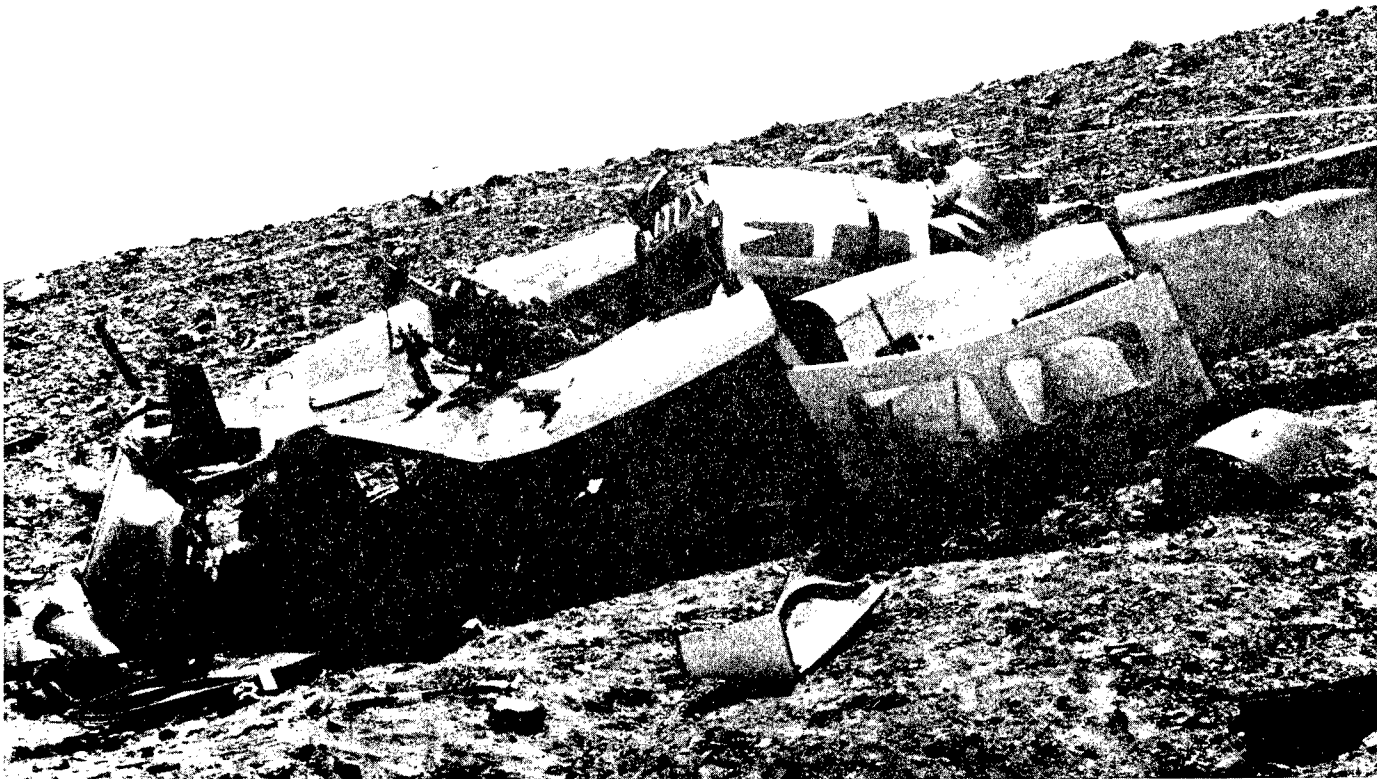
**Cause:** The IP, who was flying from the left seat, was hovering the aircraft while looking through the right rear cargo door. He did not detect the initial warning signs of dynamic rollover. The IP self-induced a task overload on himself by not using his students to provide visual obstruction clearance.

**Crewmember experience:** The IP had 2,496 rotary wing hours—most of them in the UH-1H. The student pilot in the right seat had 124 rotary wing hours—79 in UH-1Hs.

## Recommended actions

**Unit level:** Require aircrews to operate aircraft using established flight techniques and to perform adequate premission briefings which will effect maximum crew coordination.

# Maintenance test flight



UH-1 crashed when the pitch change link clevis of the red main rotor blade broke.

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## UH-1H Class A mishap

The UH-1 was on a maintenance test flight. About 40 minutes into the flight, control was lost and the aircraft crashed.

**Result:** Three fatalities and a destroyed aircraft, at a cost of \$1,456,704.

**Cause:** The pitch change link clevis of the red main rotor blade broke because of long-term fatigue fracturing of the outer two-thirds of the threaded portion of the clevis. The remaining one-third of the cross-section failed due to overstress, as it

was unable to carry the load designed for the whole component. Design of the clevis was a primary factor in the failure in that the blind lightening hole prevented detection of the crack during the required magnetic particle inspection at the time of manufacture.

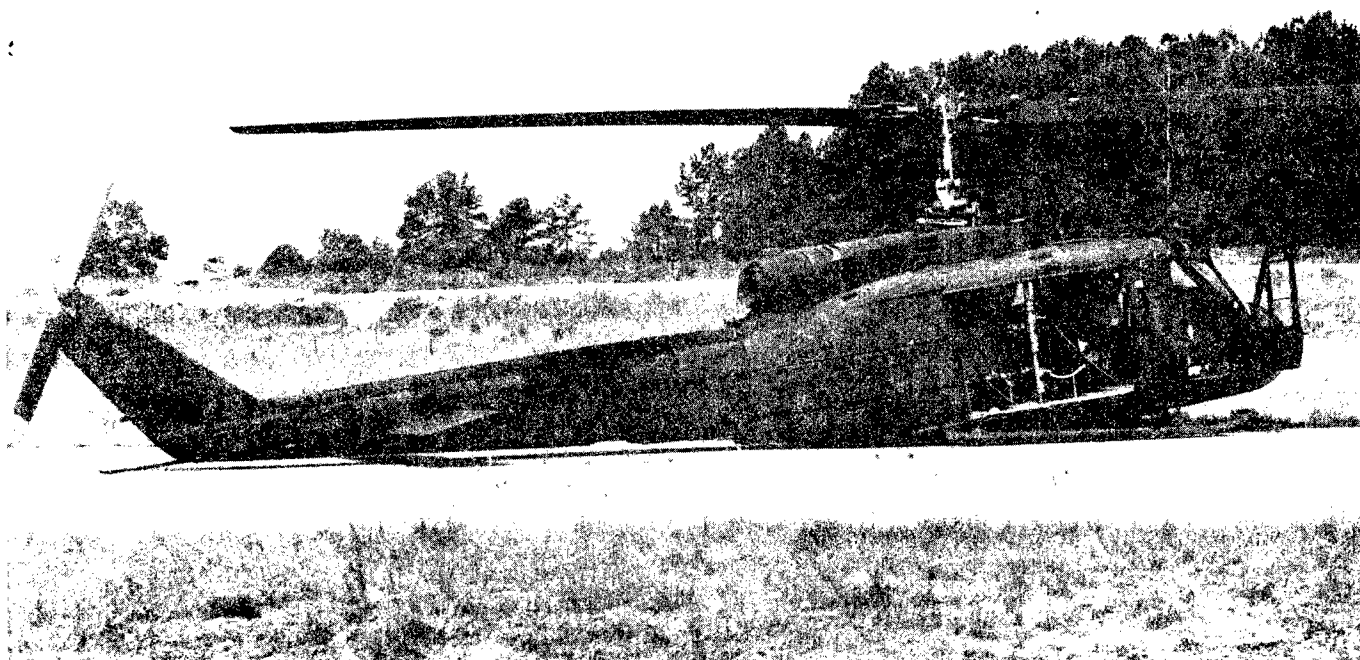
**Crewmember experience:** The pilot had 1,632 rotary wing hours—1,567 in UH-1Hs.

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## Recommended actions

**DA level:** Identify all existing faulty pitch change link clevises in use and in supply stocks and remove them from service. Review contractor quality control procedures to ensure that all required actions are completed to a 100 percent accuracy level. Delete the lightening hole within the shank from the clevis design requirements. This change to the clevis design would enhance nondestructive testing inspection of the clevis by lessening the possibility of cracks going undetected within the blind hole and eliminate an existing corrosion problem within the lightening hole.

# Incorrect diagnosis of emergency



UH-1 pilot thought he had a tail rotor malfunction and entered autorotation. Aircraft was damaged during hard landing.

## UH-1H Class B mishap

As the UH-1 pilot was making a right crosswind departure at night from a basefield, the crew heard a loud banging sound. The pilot thought he had a tail rotor malfunction and entered autorotation. He did not maintain the aircraft in trim and at an airspeed conducive to a successful autorotation. The airspeed was reduced to a point which placed the aircraft inside the red zone on the height velocity diagram. The pilot's final attempts to complete the

autorotation were unsuccessful, and the aircraft hit the ground hard.

**Result:** \$138,405 in damages.

**Cause:** The pilot incorrectly identified the cause of the loud bang and induced a situation from which he could not recover. It was concluded that the banging sound was produced by a seatbelt which was not secured.

**Crewmember experience:** The pilot had 1,168 rotary wing hours—975 in UH-1Hs. The copilot had 186 rotary wing hours—22 in UH-1Hs.

take proper actions before designation as a pilot-in-command. Stress that particular emphasis should be placed on airspeed control with regard to its effect on reaching a designated landing area and being in the green zone of the height velocity diagram.

**Higher level:** Consider the additional use of the SFTS to enhance emergency procedure training and evaluation for all rated aviators.

## Recommended actions

**Unit level:** Continue to critically assess all pilots' ability to soundly evaluate emergency situations and



# Ground mishap



A maintenance technician running up this AH-1 could not maintain directional control. As the aircraft was turning, it hit another technician kneeling on the ground.

## AH-1S Class A mishap

A nonrated operator (maintenance technician) was sitting in the back seat of the AH-1. Two other technicians were helping him perform a 7-day runup and voltage regulator check. One of the technicians was standing on the ammunition bay door, reading the checklist, and the other was kneeling on the left side of the aircraft, peering into the electrical compartment. The engine was started and rpm was increased to 6000 with the application of left pedal. As the rpm was being beeped up to 6600, the aircraft began to turn left. As the

turn increased, the operator became confused and added more left pedal, which intensified the left turn rate. The AH-1 rotated three complete revolutions, hit the ground power unit to which it was connected, and came to rest about 15 feet from the original parking spot. The technician kneeling on the ground was hit by the aircraft and died a few hours later. The technician standing on the ammunition bay door received a severe laceration.

**Result:** One fatality, one major injury, and a damaged aircraft, at a cost of \$191,978.

**Cause:** The maintenance technician failed to maintain directional control of the aircraft because of inadequate training. The training program developed by the facility was consistent with guidance provided by higher headquarters.

## Recommended actions

**Unit and higher level:** Prohibit nonrated personnel from performing ground runups in rotary wing aircraft.

**DA level:** Revise AR 95-1 to prohibit nonrated personnel from performing ground runups in rotary wing aircraft.

# Main drive shaft failure



AH-1 main drive shaft failed during flight. Pilot entered autorotation and landed in a marshy area.

## AH-1S Class B mishap

As the AH-1 was in cruise flight at about 1,000 feet agl, a loud bang was heard from the aft section of the aircraft, followed by a grinding noise. The aircraft yawed left, and the crew noted an increase in engine rpm and a decrease in main rotor rpm. The pilot entered autorotation and selected the best available landing site, which appeared to be a field. The pilot made a zero ground run landing to the site, which was a marshy area. As the aircraft settled into 4 feet of water, the right skid sank deeper than the left and the aircraft leaned to the right, causing the advancing main rotor blade to hit the mud and water

three or four times. The tail rotor drive shaft was severed due to sudden stoppage.

**Result:** \$369,176 in damages.

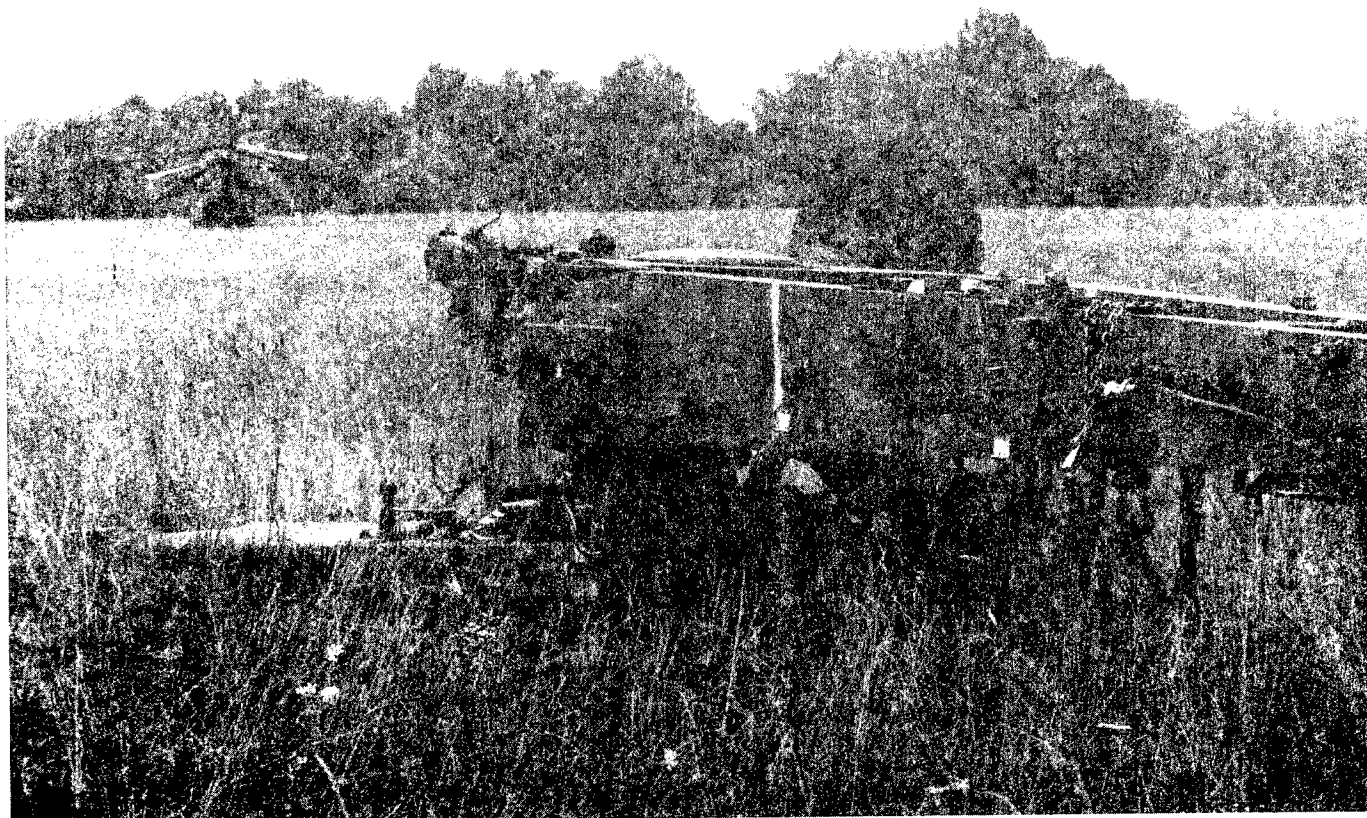
**Cause:** Failure of the main drive shaft was caused by insufficient lubrication. After an extensive storage period, the drive shaft was returned to the active supply channel without being inspected for adequate lubrication and without being freshly lubricated.

**Crewmember experience:** The pilot had 626 rotary wing hours—439 in AH-1Ss. The copilot had 325 rotary wing hours—154 in AH-1Ss.

## Recommended actions

**DA level:** Ensure the improvement of quality control of overhauled drive shafts by inspecting and repacking, if necessary, those drive shafts with a storage history before putting them into service. Accelerate the K-flex drive shaft modification for the AH-1S, thus eliminating the necessity for lubricated main drive shafts.

# Slingload released after torque split



CH-47 was slingloading this Howitzer when torque split occurred. Pilot released the Howitzer and landed.

## CH-47D Class B mishap

As the CH-47 was slingloading an M198 155mm Howitzer, a torque split of approximately 30 percent occurred, accompanied by a rotor droop of 4 percent. As the pilot started a powered approach to land, the torque split occurred again. The crew chief saw flames coming from the tail cone of the No. 2 engine. The pilot released

the load about 30 feet above the ground and landed.

**Result:** \$156,000 in damages.

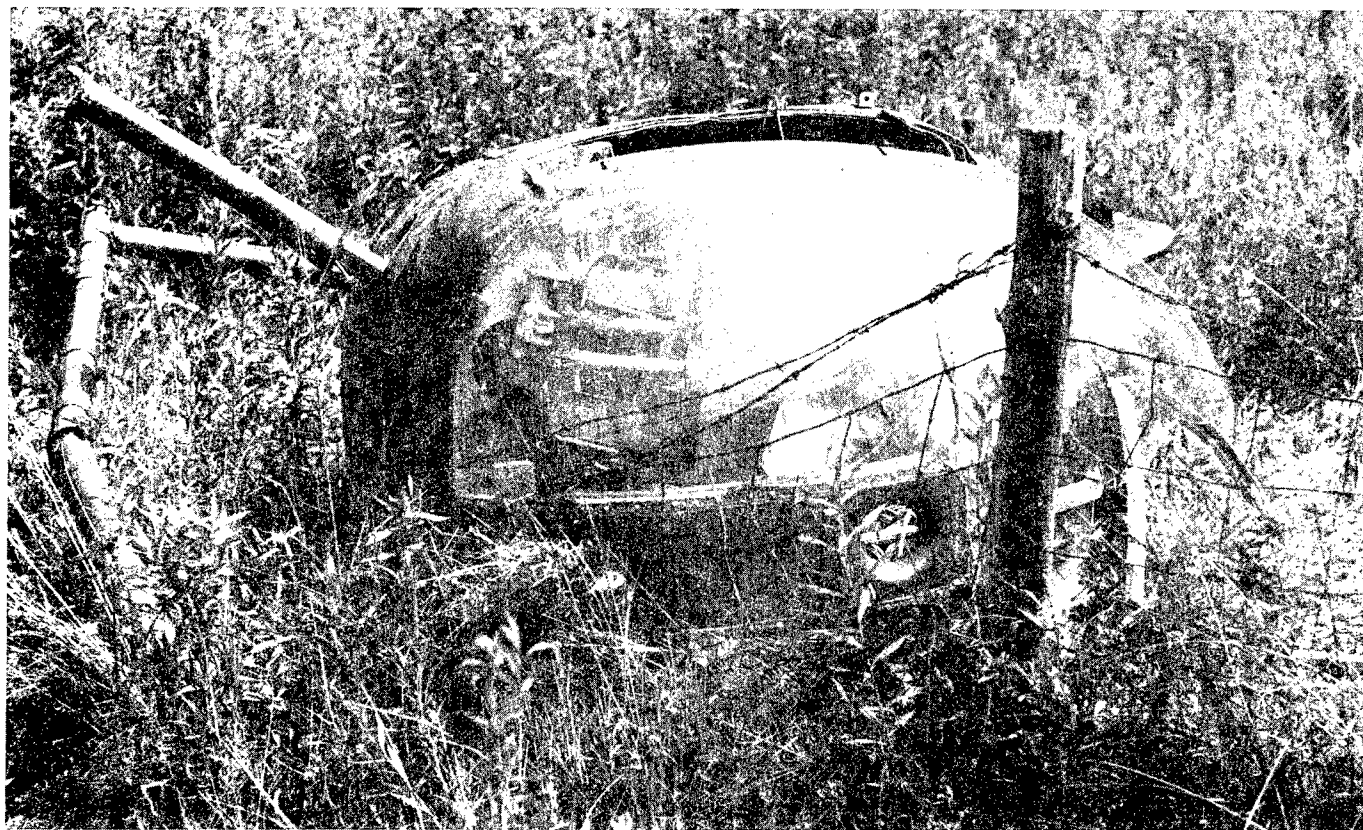
**Cause:** The torque split occurred because of a defective torque indication system that could not be discovered during normal operations. The No. 2 engine droop eliminator connection No. 3 was loose. This could have caused the rotor droop to occur with the initial torque split, but this could not be definitely established.

## Recommended actions

**Unit level:** Brief assigned personnel about this accident and continue to troubleshoot the torque indication system and correct the deficiency.

**DA level:** Determine cause of N2 assembly shortcomings and correct them.

# Wire strike



OH-6 hit wires and crashed while flying 130 feet above the ground.

## OH-6A Class A mishap

The OH-6 was on a mission to locate three escaped prisoners. Two civilian law enforcement personnel were on board the aircraft. The OH-6 hit wires about 130 feet above the ground. The main rotor and mast assembly separated, and the aircraft crashed on its left side.

**Result:** Three fatalities and a destroyed aircraft, at a cost of \$470,450.

**Cause:** Contrary to command regulation, the pilot was flying too low. His attention was divided between trying to fly the aircraft, navigating, and communicating with the passengers using written messages. He was also probably trying to spot the escaped convicts. There was no qualified observer on board, and neither of the passengers had any way to communicate with the pilot over the aircraft intercommunication system.

**Crewmember experience:** The pilot had 8,221 rotary wing hours—942 in OH-6As.

## Recommended actions

**Unit level:** Ensure all pilots are aware of the restrictions in command regulations prohibiting flying below 500 feet agl except in rescue or emergency situations. Ensure that adequate details are provided before an aircraft is dispatched so that equipment/personnel required to safely accomplish the mission are on board.

**Higher level:** Ensure that details of the mission necessary for adequate planning are provided in conjunction with mission assignment.

# Dynamic rollover



OH-58 pilot induced dynamic rollover while bringing the aircraft to a hover.

## OH-58A Class A mishap

After hot refueling, the pilot of the OH-58 repositioned his aircraft to wait for a UH-1, located to his right rear, to finish refueling. The pilot then started to pick the OH-58 up to a hover while looking to the rear over his right shoulder. The pilot did not notice that the cyclic control was in the aft right quadrant. The left skid came off the ground first, and the aircraft began pivoting about the heel of the right skid. In this configuration, the aircraft entered dynamic rollover and came to rest on its right side.

**Result:** A destroyed aircraft, at a cost of \$146,646.

**Cause:** The pilot's attention was directed to his right rear and he induced dynamic rollover while bringing the aircraft to a hover. The pilot may have been fatigued. He had exceeded the allowable flight time for a 7-day period by 14 hours. He had just finished a 6½-hour continuous flight and had slept only 3½ hours the night before the accident.

**Crewmember experience:** The pilot had 1,373 rotary wing hours—226 in OH-58As.

## Recommended actions

**Unit level:** Inform personnel about the consequences of inadequate attention. Stress the need to perform all tasks in accordance with applicable rules, regulations, and basic flying techniques. Establish a definite crew rest policy and designate individuals within the chain of command to monitor and take appropriate action concerning crew rest.

**Higher level:** Ensure unit commanders establish and monitor a crew rest policy to avoid fatigue-induced errors.



# Dynamic rollover



OH-58 pilot brought the aircraft to a hover and began a right turn. Right skid hit the ground and aircraft rolled over.

## OH-58A Class A mishap

The OH-58 pilot landed at a tactical airstrip to drop off his crew chief. As the pilot was bringing the aircraft to a hover, at about 2 feet above the ground he began a right clearing turn. It is suspected the pilot misjudged the clearance between the skid and the ground and made no collective input to maintain altitude. The skid hit the

ground hard enough to cause a roll to the right and result in dynamic rollover. The impact of the advancing blade with the ground caused the helicopter to rebound sharply to the left and roll onto its left side.

**Result:** One major injury and a destroyed aircraft, at a cost of \$157,532.

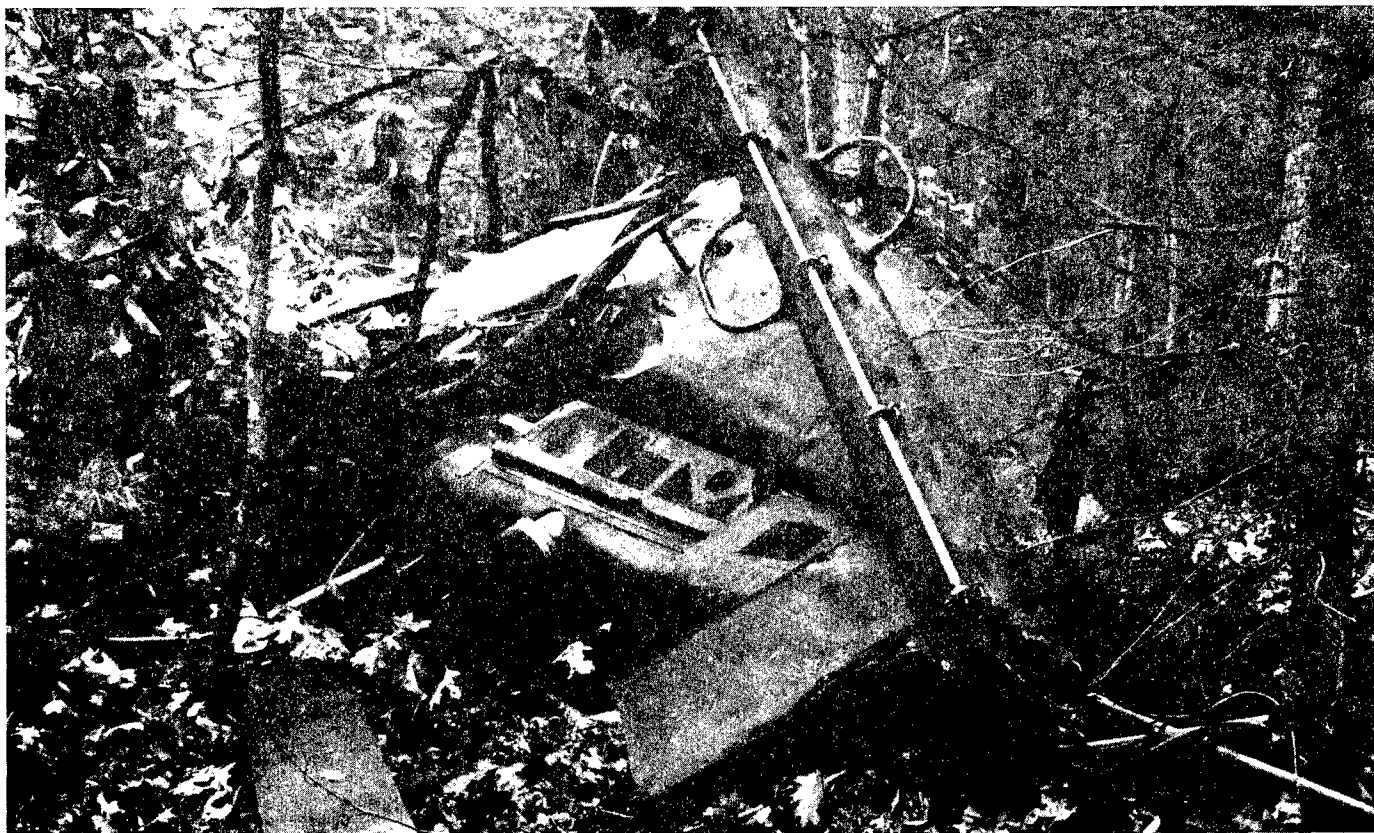
**Cause:** Suspect the pilot misjudged the clearance between the skid and the ground and dynamic rollover occurred.

**Crewmember experience:** The pilot had 1,992 rotary wing hours—283 in OH-58As.

## Recommended actions

**Unit level:** Stress to unit aviators the importance of maintaining the hover tolerances specified in TC 1-137.

# Tree strike



OH-58 descended into trees and crashed during training flight, killing the pilot and copilot.

## OH-58C Class A mishap

The OH-58 was on a mountain navigation training flight, with another OH-58 flying as lead. The crew of the lead aircraft saw the No. 2 aircraft descend in a nose-low, left-bank attitude into trees on a hillside. There was no radio communication from the No. 2 crew. The aircraft came to rest on its left side with the engine still running.

**Result:** Two fatalities and a destroyed aircraft, at a cost of \$861,898.

**Cause:** It could not be determined why the crew allowed the aircraft to enter the trees. The crew may have crossed the hill at a low altitude and, seeing a tall tree to their front, made an evasive maneuver from which they could not recover at their low altitude.

**Crewmember experience:** The pilot had 644 rotary wing hours—530 in OH-58Cs. The copilot had 254 rotary wing hours—130 in OH-58Cs.

## Recommended actions

**Unit level:** Emphasize to assigned aviators the importance of maintaining positive aircraft control, especially while operating at low altitudes.

**DA level:** Provide cockpit voice recorders and flight data recorders for Army aircraft.

# Solo training flight



Tail rotor effectiveness was lost when an object hit the tail rotor blade of this TH-55. The student pilot did not follow correct emergency procedures and aircraft crashed.

## TH-55A Class A mishap

As a TH-55 student pilot was on a solo training flight, an unknown object hit a tail rotor blade, causing the blade to hit the tail skid. Tail rotor effectiveness was lost. The student, apparently disoriented, was in the process of making a right turn and did not have sufficient airspeed to prevent the aircraft from revolving about the vertical axis. The student then did not follow the emergency procedures from the operator's manual and neither regained airspeed nor apparently entered autorotation. Instead, he further aggravated the spin by reducing airspeed to zero. The aircraft continued to spin and crashed.

**Result:** One fatality and a destroyed aircraft, at a cost of \$185,590.

**Cause:** When the object hit the tail rotor, the student pilot allowed cruise airspeed to fall below that required to streamline the aircraft and did not follow dash 10 emergency procedures.

**Crewmember experience:** The student pilot had 32 hours in the TH-55A.

## Recommended actions

**Unit level:** Brief all personnel on the importance of a thorough preflight, noting all loose or excess items which may produce damage if dislodged during flight operations. Stress the importance of accurate assessment of tail rotor malfunctions. Ensure all students are knowledgeable and capable of handling all emergencies in the TH-55 before conducting solo flights.



# Bird strike



This Mohawk hit a flock of seagulls during takeoff. The pilot and technical observer ejected when the No. 1 engine quit.

## RV-1D Class A mishap

As the Mohawk pilot was taxiing, he saw a large number of seagulls on the runway. He taxied 800 feet down the 7,000-foot runway, chasing the birds away, and then taxied back for takeoff. The pilot was told by the tower operator that he was still cleared for takeoff and that there were birds adjacent to the taxiway. The number of birds, which was about 200, was not mentioned by the tower operator. As the plane was taking off, it hit about 30 birds. The No. 1 engine quit and the propellers autofeathered. The airplane continued to climb, and the pilot jettisoned the external fuel tanks at about 75 feet. Altitude could not be maintained, and the pilot and technical observer ejected. The airplane touched down on a road, slid across an intersection, and was partially consumed by postcrash fire.

**Result:** One major injury, one minor injury, and a destroyed aircraft, at a cost of \$3,707,769.

**Cause:** The tower operator did not give the pilot a complete bird advisory, which should have included the estimated number of birds. The pilot did not ask about the number of birds because he thought they were "spooked" and would be out of the way during the takeoff.

**Crewmember experience:** The pilot had 622 fixed wing hours—563 in RV-1Ds.

## Recommended actions

**Unit level:** Emphasize to air traffic controllers the importance of issuing complete advisories in accordance with the Air Traffic Control Handbook in order to provide pilots with the most complete information available concerning the advisory/condition. Emphasize to aviators the importance of ensuring that when they are issued an advisory that may affect safe aircraft operation they either receive complete information or obtain appropriate information concerning the advisory/condition.

**Higher level:** Continue to take action to eliminate/reduce the potentially hazardous concentrations of birds from the airfield runway environment.